Know the type of metal being ground to make sure you have the correct respiratory equipment. Some metals give off fumes that could impair breathing. Your clothing should be secured. Remove rings and bracelets, and button your sleeves at the wrist. Do not allow long hair or loose clothing to contact the spinning wheel. Leather gloves should be worn to protect the hands from sparks and debris.

When turning on a bench or pedestal grinder, you always must stand to the side of the wheel while it comes up to speed. This precaution will keep your body out of the way of debris should a wheel disintegrate. Once the wheel is up to speed, the grinding can begin. Never grind until the abrasive wheel has reached its operating speed. Never grind on the side of the abrasive wheel because this technique undercuts the abrasive wheel, causing it to shatter. For grinding small pieces, clamp the item in a vice or locking pliers (vice grips). Do not hold small pieces in your hand. Always use the full edge of a grinding wheel. An abrasive wheel that is uneven or shows any sign of excessive use should be dressed, using a dressing tool.

One common mistake most people make is grinding soft materials. Aluminum, brass, plastic (Plexiglas), and other soft, non-ferrous materials never should be ground on a general-purpose abrasive wheel. These materials clog the pores, causing it to overheat, explode or shatter. A clogged wheel does not cut efficiently, so people tend to push harder on the tool or material. This transferred force increases stress on the abrasive wheel and allows excessive heat to build. Allow it to stop on its own, and never use a piece of metal or other equipment to slow the abrasive wheel.

Chief Malley is a maintenance analyst at the Naval Safety Center.

What Flux Is in Your Toolbox?

By AVCM(AW/SW) Willie L. Burnett

During recent surveys, I've found too many activities use highly corrosive and unauthorized solder-paste flux on aircraft wiring and components. Most disturbing is that the container label for the flux paste has a clear warning not to use it on electrical components.

This trend led me to question the reason for the warning. I searched the FedLog, and it revealed the material is in the supply system, along with several other types of flux. I am not a chemist, so the chemical breakdown of the material and the references (organic, inorganic, chloride, rosins, activated, mildly activated, or basically lethargic) left my head spinning in short order.

I sent an e-mail to the experts at the Naval Surface Warfare Center in Crane, Ind. Their feedback was prompt and revealed a lot. The flux paste I continuously find is part number 0-F-506 and NSN 00-255-4566, and it contains zinc chloride and ammonium chloride. Zinc chloride is an acid, which should not be used for soldering electrical components because it's corrosive.

Electrical and electronic applications exist, and a number of items are available in the FedLog, for example NSN 3439-00-162-8388, corrosion-resistant, liquid-soldering flux. Work with material control to get a 2B advice code, and make sure the paste isn't offered as a substitute.

The experts from Crane said, "Every assembly this paste flux has touched may have reduced reliability and may cause premature failure." Yet, many technicians told me the paste is easier to use and to clean up, but they need to consider the additional work required to repair the damage done from the wrong material. What's in your toolbox?

Master Chief Burnett is a maintenance analyst at the Naval Safety Center.

NAVAIR 01-1A-23, WP 003 00, Page 10, Paragraph 13(b)(6) clearly states, "Zinc chloride fluxes should never be used for high-reliability soldering, as they are highly corrosive." NAVAIR 01-1A-505, WP 017 00, Page 4, Paragraph 26 states "Acid or inorganic flux shall not be used as they are highly corrosive."–Ed.